



PEOPLE AND MANAGEMENT

The Laboratory stays vibrant by attracting and retaining a high-quality workforce inspired by “passion for mission” and dedicated to excellence. Highly motivated individuals and exceptional multi-disciplinary teams are responsible for achieving program goals, advancing science and technology, and continually improving operations. Laboratory staff are carrying forward a long tradition of scientific and technological innovation to meet pressing national needs. The strength of the current workforce is demonstrated by the many awards they received for their scientific accomplishments and quality operations.



Strong ties to world-class research universities—in particular many partnerships with the various campuses of the University of California (UC)—serve as a vehicle for bringing new talent to the Laboratory. Much of Livermore’s work requires special skills. Scientists gain essential expertise through years of training, working with senior staff, and access to unique computational and experimental capabilities. The Laboratory’s continuing success depends on providing employees with abundant career development opportunities, a quality work environment, and the chance to work on projects that make a difference to the nation.

Livermore’s long-standing ties with UC have also fostered a tradition of intellectual independence and integrity as well as a focus on the long-term interests of the nation. Laboratory researchers strive to anticipate future national needs and security threats. Science and technology investments and exploratory research and development efforts are targeted accordingly. Visionary technical leadership and effective management of research programs and operations underpin Livermore’s achievements and sustain public trust in the Laboratory.

Contract Competition for Livermore

In May 2007, the Department of Energy (DOE) Secretary Samuel W. Bodman announced that Lawrence Livermore National Security, LLC (LLNS) was awarded the contract to manage and operate Livermore. Laboratory director George Miller, who led the competition for LLNS, will continue as director and be president of LLNS. LLNS is a limited liability corporation made up of Bechtel National, Inc., the University of California, BWXT Technologies, Inc., and the Washington Group International, Inc. Battelle Memorial Institute, four small business subcontractors, and Texas A&M University are also members of the team. The new contract begins on October 1, 2007, and continues for seven years. Up to an additional 13 years can be earned through successful performance under an award-term provision.

DOE had announced in 2003 its intention to open the management of Los Alamos to full competition at the expiration of the current contract. Subsequent congressional

legislation required open competition for the management of all three UC-managed national laboratories: Lawrence Livermore, Los Alamos, and Lawrence Berkeley. In April 2005, DOE awarded a new five-year contract to UC to manage and operate Lawrence Berkeley. In December 2005, Los Alamos National Security, LLC was named the contractor for Los Alamos.

The competition for the Lawrence Livermore contract began in January 2006 with a DOE request for an Expression of Interest. In March, the National Nuclear Security Administration (NNSA) issued a formal Acquisition Plan. The May draft Request for Proposal (RFP) was followed in July by the final RFP. The proposal deadline was October 27, having been extended from October 12. Oral interviews took place in December.

LLNS proposed an approach to sustain exceptional science and technology and innovation at the Laboratory, to implement enhanced business and Laboratory operations, to deliver strong

mission performance while also expanding the amount of work for customers outside of NNSA and the Department of Energy, and to be a leader in achieving the objectives of NNSA's Complex 2030 Initiative.

Laboratory Management Changes

The UC Regents selected George Miller in March 2006 as interim director of the Laboratory, to serve through the remainder of the University's current contract to manage Lawrence Livermore. Miller has been a Laboratory employee since 1972, and he brought to the assignment invaluable expertise in nuclear weapons and national security as well as experience as an associate director in many programs. Miller succeeded Michael Anastasio, Livermore's ninth director, who became director of Los Alamos National Laboratory on June 1, 2006. Friends, colleagues, former Laboratory directors, and dignitaries took the opportunity to say goodbye to Anastasio and wish



Ed Moses (left), associate director for National Ignition Facility (NIF) Programs, explains NIF to visiting UC regents.



Laboratory director George Miller wishes former director Michael Anastasio a fond farewell.

him well in ceremonies held at Livermore on May 25, 2006.

Soon after Miller became director, he announced the appointment of new members of his senior management team. Dave Leary became acting deputy director for Operations in April. Leary joined the Laboratory in 1973, and his long career has spanned numerous management positions, including head of the Security Department, head of the Innovative Business and Information Services Department, and National Ignition Facility Programs deputy director for Operations. In 2003, he was appointed associate director of Laboratory Services and director of Safeguards and Security. Leary replaces Wayne Shotts, who retired from the Laboratory after a long and distinguished career.

Bruce Warner was appointed acting associate director at large to support the director and deputy directors in the management of Laboratory operations. In addition, Larry Ferderber was named the director's chief of staff, and Barbara

Peterson was appointed transition manager to lead Laboratory efforts for a smooth transition to the new contractor.

Preparing for the Transition

A pre-transition team was formed in May 2006 to prepare for the process of transferring people, property, and procedures to the new contractor, who will begin managing and operating the Laboratory on October 1, 2007. The team, composed of subject matter experts, first identified all the work required to ensure a smooth handover with minimal disruption to the workforce and Laboratory programs. The information was compiled and documented in a detailed project plan—with a complete work breakdown structure to ensure accuracy and thoroughness. Team leaders, working with subgroups, then began the task of reviewing materials ranging from Laboratory contracts and agreements to facilities and property to assess potential impacts that must be addressed during transition.

The pre-transition team (now the transition team) has also been keeping employees informed about the contract and transition processes. The Laboratory debuted a special Web site in May 2006, which includes frequently asked questions, up-to-date news, a monthly newsletter, archival material related to the selection process and transition, and links to relevant UC and NNSA Web sites. The team leader and members also “made the rounds” in 2006, giving all-hands presentations—with opportunities for questions and answers—to directorates and other organizations at the Laboratory. In addition, employees from the Administration and Human Resources Directorate briefed employees about their current benefits to prepare them for evaluating choices and changes that may occur when the contract changes.

Attention to Workforce Management

In 2006, the Laboratory's Workforce and Communications Working Group



Then NNSA administrator Linton Brooks thanks Wayne Shotts for his years of dedicated service upon Shotts's retirement.



A team of subject matter experts under Barbara Peterson (standing) is working to ensure a smooth transition to the new management contractor on October 1.

conducted a comprehensive assessment, concluding that the directorates have been effectively managing skill-mix needs and that staffing levels are manageable through normal attrition. Retention rates remain high for employees that perform tasks related to NNSA Defense Programs as well as those who have mission-critical skills. Special emphasis is being given to managing recruitment and retention challenges that may arise during the transition to the new contractor. Exciting career opportunities and an inclusive, collegial work environment are key to effective recruitment and retention as Livermore works to create a more diverse workforce.

Ongoing activities with UC campuses (see p. 42) and other major research universities act as a pipeline to fill the need for critical skills and greater diversity. One of many special opportunities for graduate and undergraduate students is the Department of Homeland Security (DHS) Scholars and Fellows Program, which places outstanding young scholars at national



Cherry Murray, deputy director for Science and Technology, reviews a poster by Aaron Fisher, a participant in the Student Employee Graduate Research Fellowship Program.

laboratories for 10 weeks during the summer. Of the 130 award recipients in 2006, 33 students identified Lawrence Livermore as their first choice laboratory. Altogether, Livermore is host to over 600 summer students who work side by side with Laboratory scientists.

The Laboratory's continuing success also depends on developing future leaders. Livermore's comprehensive programs in leadership and management development are recognized as among the "best in

A Healthy Heart

Started as a pilot project in 2003, the Laboratory's Healthy Heart Program has doubled each year in its outreach. Its goals are to prevent, identify, and mitigate cardiovascular diseases and diabetes through comprehensive screenings, education, and programs that create a healthier work environment. More than 1,500 employees have participated in assessments for risk of heart disease, stroke, diabetes, and other chronic diseases. The Healthy Heart Program has demonstrated statistically significant reductions in such risk factors as high blood pressure and elevated cholesterol.



Exercise classes for employees have been held for many years. Now they are an important part of the Healthy Heart Program, which encourages sedentary individuals to join in.

class" within the UC system and the DOE complex. These programs includes two training courses that are required for supervisors, a variety of technical and administrative leadership training courses, and a two-and-a-half-day Management Institute presented by Laboratory senior managers to help prepare next-generation leaders. Nearly 1,200 current supervisors have been trained, and more than 760 emerging and current supervisors and managers have participated in the Laboratory's various leadership succession development programs. The representation of women and minorities in these succession development programs has steadily increased and is now at a high level in support of diversity objectives.

People and Programs in the News

The scientific and technological accomplishments of Livermore employees are recognized by prizes, awards, and front-page publicity. But science isn't the whole story at Lawrence Livermore. Many other individuals and teams are also recognized for their contributions both inside and outside the Laboratory.

Laboratory scientists and engineers were responsible for 158 invention disclosures, 144 U.S. patent applications, 19 first foreign patent applications, 63 issued U.S. patents, and 24 issued foreign patents in fiscal year 2006.



The American Physical Society honored James R. Wilson with their Hans A. Bethe Prize. The award is presented annually to an individual in recognition of

outstanding accomplishments in theory, experiment, or observation in the areas of astrophysics, nuclear physics, nuclear astrophysics, or closely related fields.

Masaru Takagi received the 2006 Larry Foreman Award for Excellence and Innovation in Inertial Confinement Fusion (ICF) Target Fabrication at the 17th Target Fabrication Meeting. Takagi is the inventor of the chemical processes used to make extremely round and smooth plastic shells that are the starting point for ICF capsule fabrication.



Scott Wilks (left) and Max Tabak were awarded the 2006 Award for Excellence in Plasma Physics Research by the American Physical Society, along with two physicists from Japan and one from Great Britain. They were cited for developing the fast ignition inertial fusion concept and for demonstrating key aspects in a series of experiments that have catalyzed the worldwide effort on fast ignition.

Richard Christensen was awarded the Nadai Medal from the American Society of Mechanical Engineers for contributions to mechanics of materials and heterogeneous media, theory of viscoelasticity, properties of polymers and non-Newtonian rheology and wave propagation.

Stanford professor and former Laboratory postdoc Wendelin Wright and Stony Brook University assistant professor and Livermore collaborator Michael Zingale received Presidential Early Career Award for Scientists and Engineers honors. Both were nominated by the Laboratory for work performed at Livermore.



Cherry Murray, deputy director for Science and Technology, has been elected vice president of the American Physical Society for 2007. She will successively serve as president-elect, president, and then immediate past president.

Steven R. Patterson, associate director for Engineering, was elected president of the American Society for Precision Engineering.

Tomás Díaz de la Rubia, associate director for Chemistry, Materials, and Life Sciences, was elected as vice president and president-elect for the American Physical Society's Division of Computational Physics.

The 2006 Gordon Bell Prize for Peak Performance (see p. 9) was awarded to Laboratory scientists and collaborators for "Large-Scale Structure Calculations of High-Z Metals on the BlueGene/L Platform." In addition, the BlueGene/L Supercomputer and Quantum Chromodynamics project team, which included a Livermore scientist, earned a Gordon Bell Prize for Special Achievement.

Robert Budnitz and Karl van Bibber were elected fellows of the American Association for the Advancement of Science. Budnitz was honored by the section on engineering for contributions to understanding the safety of nuclear power reactors and deep geological radioactive waste repositories, with emphasis on probabilistic safety analysis. Van Bibber was recognized by the section on physics for contributions to the field of astrophysics and particle accelerator physics, particularly for his efforts in the dark matter axion search.

The Laboratory won seven R&D 100 awards among the 100 granted by *R&D Magazine* for the top industrial innovations worldwide (see p. 44). The Laboratory won more awards than any other institution. This brings the Laboratory's total to 113 awards.

The seven winning technologies were:

- An explosives detector known as E.L.I.T.E., the Easy Livermore Inspection Test for Explosives, which can be used by airport screeners, military personnel, and others to detect more than 30 different explosives.
- A new high-precision radiation detector called UltraSpec that operates at very low temperatures and can assist security officials in identifying even small amounts of nuclear material.
- The Sonoma Persistent Surveillance System, which offers the first integrated, broad-area, high-resolution, real-time motion imagery system for surveillance applications.
- A high-average-power wavelength conversion device that can change the color of laser light, permitting large-aperture high-average-power lasers to operate at half the wavelength of the laser crystal's natural emission wavelength.
- A technique called Externally Dispersed Interferometry for conducting precision measurements of the Doppler velocities of stars or sunlit targets.
- Analysis algorithms allowing the exploration of large, complex, and multidimensional data sets. The technology has been dubbed Sapphire.
- A tool called Babel, which addresses the problem computer scientists face in developing simulation codes that have language incompatibilities among the software libraries they must use.

Two Laboratory researchers were named fellows of the American Physical Society. Peter Amendt was honored for contributions to the development of indirectly driven single- and double-shell inertial confinement fusion physics necessary for the demonstration of laboratory-scale ignition. Gilbert (Rip) Collins was lauded for contributions to the field of high-energy-density physics related to the development and application of novel laser-compression capabilities to measuring ultra-high-pressure material properties.



Grace Clark was elevated to fellow of the Institute of Electrical and Electronics Engineers, based on her pioneering contributions to block adaptive filtering.

Scot Olivier was named fellow of the International Society for Optical Engineers for achievements in adaptive optics.

Maya Gokhale became a fellow of the Institute of the Electrical and Electronics Engineers for contributions to reconfigurable computing technology.

David Keyes was elected vice-president-at-large of the Society for Industrial and Applied Mathematics. Keyes is also Fu Foundation Professor of Applied Mathematics in the Department of Applied Physics and Applied Mathematics at Columbia University.

Jim Seward was elected president of the Western Occupational and Environmental Medical Association.



Dean Williams and Hope Ishii won the 2006 *Science Spectrum* Top Minorities in Science “Trailblazer” award. The award recognizes outstanding Hispanic, Asian American, Native American, and black professionals in the science arena whose leadership and innovative thinking on the job and in the community extend throughout and beyond their careers. Robert Shepard was honored with the 2006 Emerald Honors Educational Leadership Award.



The Terascale Simulation Facility Project won the DOE Secretary’s Project Management Award of Achievement (see p. 36).

Gerald Kiernan was awarded the NNSA Silver Metal for “distinguished career accomplishments and outstanding contributions” including service as the NNSA assistant deputy administrator for Nonproliferation R&D.

The Easy Livermore Inspection Test for Explosives (E.L.I.T.E.) won an Excellence in Technology Transfer Award from the Federal Laboratory Consortium for Technology Transfer (see p. 21).

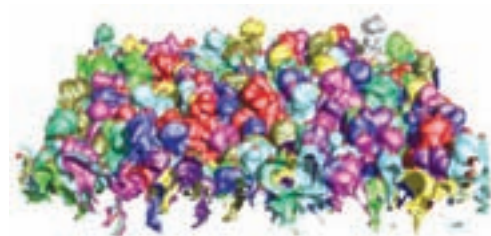
The National Ignition Facility Program won a “Perfect Record” award from the National Safety Council for a year of accident-free work (see p. 34).

An NNSA Defense Programs Award of Excellence was given to the Startup Team for the Device Assembly Facility at the Nevada Test Site.

Laboratory waste minimization efforts garnered four DOE annual pollution prevention awards, three of them “best in class” awards and the fourth in the “environmental stewardship” category. Awards were given to teams representing the Flash X-Ray and Contained Firing Facility at Site 300, the JASPER gas gun at the Nevada Test Site, and the Space Action Team at Livermore main site.

John Wolf was appointed to a two-year term as a director of the Academy of Certified Hazardous Materials Managers.

A paper co-authored by Bill Glassley was cited by the Danish science magazine *Ingeniøren* as one of the five most important scientific achievements of 2006. The paper is “The Rise of Continents: An Essay on the Geologic Consequences of Photosynthesis.”



At the 2006 IEEE Visualization Conference, Dan Laney, Peer-Timo Bremer, Ajith Mascarenhas, Valerio Pascucci, and Paul Miller were honored with the Best Application Paper Award for “Understanding the Structure of the Turbulent Mixing Layer in Hydrodynamic Instabilities.”

A paper on bioaerosol mass spectrometry by a team that included several Laboratory employees won honorable mention from the National Institute for Occupational Safety and Health in its annual Alice Hamilton Awards.

Ken Bogen and Ed Jones received the Society for Risk Analysis Best Paper Award in its Decision Sciences category.



Mike Newman (above), who has made three trips to Iraq, and Jim Trebes were feted by the U.S. Army for a surveillance system they developed, considered one of the Army's ten greatest inventions for 2005.

Tom Isaacs, director of the Office of Policy, Planning, and Special Studies, was appointed to a new international advisory board for Japan's Nuclear Waste Management Organization.

Anantha Krishnan was selected as co-chair of the National Academy of Science Committee on Testing and Evaluation of Biological Standoff Detection Systems.



The U.S. Army Joint Forces Command and the U.S. Secret Service honored Mike Uzelac (right, with his wife, center) for his work on the Joint Conflict and Tactical Simulation (JCATS), the most widely used conflict simulation model in the world.

Cary Spencer received a Meritorious Unit Citation from the Central Intelligence Agency.

DOE lauded Dave Brown for his leadership of the Laboratory Classification and Export Control Office, for responding to the needs of the nuclear weapons community while building trust with environmental, safety, and health advocates.



Susan Allen was honored by DHS for her role in preparing the federal government's first biennial bioterrorism risk assessment.

Two of the Laboratory's technical publications were honored in the 2005 Society of Technical Communication international competition. The Chemistry and Materials Science Directorate *2004 Annual Report* won an Excellence Award and the *Quantum Simulations Group Brochure* won a Merit Award.

Jerry Schweickert won an Outstanding Mentor Award from DOE.

Becky Failor was chosen by the Department of State to represent the U.S. at the first conference on Arab State Women Leaders in Science, Engineering, and Technology.

The 2006 Houtermans Award winner was Jimi Badro, who has been collaborating with Laboratory researchers for years. The Houtermans Award is given annually by the European Association of Geochemistry in recognition of an outstanding publication or series of publications by a young scientist under the age of 35.



A video produced at the Laboratory, "Contractors Construction Safety Orientation at LLNL," earned awards from AEGIS and *Digital Video Magazine*. The video also has a Spanish language version and is required viewing for all subcontractors performing construction work on site.

"From the Laboratory to the Marketplace," a video about technology transfer and commercialization successes, won an Award of Distinction from the Communicator Awards and an award from *Digital Video Magazine*.

Steve Homann was honored with the Laboratory's first Distinguished ES&H Contributions Award for his work in radioactive dispersion consequence assessment.



The Laboratory's six-member team of protective security officers captured second place in the annual Best of the West SWAT competition for law enforcement special-response teams.

Retiree George Michael was lauded during the opening ceremony of Supercomputing 2006, the premier international supercomputing conference he was instrumental in founding in 1988.

The Frost & Sullivan Emerging Technology of the Year Award was presented to a team of Laboratory scientists for the development of the carbon nanotube membrane.

Two teams won Lawrence Livermore's annual Science and Technology awards, the Laboratory's highest award for achievement in science and technology: the Nuclear Car Wash Team, which developed a drive-through detector system for cargo inspection, and the Non-Equilibrium Warm Dense Gold Team, which achieved the highest energy density ever observed for a solid heated at constant volume.

Laboratory Budget

Most of Livermore's approximately \$1.6 billion budget for fiscal year 2006 was designated for research and development activities in program areas supporting DOE missions.

As a national security laboratory, Livermore is part of DOE/NNSA. The Laboratory's funding largely comes from the NNSA Office of Defense Programs for stockpile stewardship activities. Support for national security and homeland security work also comes from the NNSA Office of Defense Nuclear Nonproliferation, Department of Homeland Security, various Department of Defense sponsors, and other federal agencies.

As a multiprogram laboratory, Livermore applies its special capabilities to meet

important national needs. Activities sponsored by non-NNSA parts of DOE include work for the Office of Environmental Management as well as research and development projects for the Office of Science and many other program offices. Non-DOE sponsors include federal agencies (such as the National Aeronautics and Space Administration, Nuclear Regulatory Commission, National Institutes of Health, and Environmental Protection Agency), State of California agencies, and industry.

Many of the Laboratory's research and development activities are pursued for sponsors as partnerships that combine special expertise and capabilities of the Laboratory with those of other DOE laboratories and research universities.

